UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/717,745	11/20/2003	Christel-Loic Tisse	859063.547	8776

38106 7590 04/18/2007	EXAMINER	
SEED INTELLECTUAL PROPERTY LAW GROUP PLLC	LIEW, ALEX KOK SOON	
701 FIFTH AVENUE, SUITE 5400	ART UNIT	PAPER NUMBER
SEATTLE, WA 98104-7092	2624	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/18/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

PTOL-90A (Rev. 10/06)

		Application No.	Applicant(s)
		10/717,745	TISSE ET AL.
Office Action Summary		Examiner	Art Unit	
		Alex Liew	2624	

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on <u>20 November 2003</u>.

2a) ☐ This action is **FINAL**.   2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) <u>*1-30*</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) <u>*1-30*</u> is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☒ The drawing(s) filed on <u>20 November 2003</u> is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a) ☒ All   b) ☐ Some * c) ☐ None of:

      1. ☒ Certified copies of the priority documents have been received.

      2. ☐ Certified copies of the priority documents have been received in Application No. _____.

      3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1, 11, 15 and 16 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 9 of copending Application No. 10/717,804. The conflicting claims are not identical because copending application requires the additional steps of calculating a first approximate definition score, selecting subset of images based on first definition score, calculating a second characteristic definition score, wherein locating a pupil in the image, wherein applying a window enclosing the pupil, not required by claims 1, 11, 15 and 16 of the current application. However, the conflicting claims are not patentably distinct from each other because:

- Claims 1, 11, 15 and 16 of current application and claim 9 of copending applicant recite common subject matter;

- Whereby claims 1, 11, 15 and 16 of current applicant, which recites the open ended transitional phrase "comprising", does not preclude the additional elements recited by claim 9 of copending application, and

- Whereby the elements of claims 1, 11, 15 and 16 of current applicant are fully anticipated by copending application claim 9 of copending application, and anticipation is "the ultimate or epitome of obviousness" (*In re Kalm*, 154 USPQ 10 (CCPA 1967), also *In re Dailey*, 178 USPQ 293 (CCPA 1973) and *In re Pearson*, 181 USPQ 641 (CCPA 1974)).

Claims 2 and 17 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 10 of copending Application No. 10/717,804. The conflicting claims are not identical because copending application requires the additional steps of calculating a first approximate definition score, selecting subset of images based on first definition score, calculating a second characteristic definition score, wherein locating a pupil in the image, wherein applying a window enclosing the pupil, not required by claims 2 and 17 of the current application. However, the conflicting claims are not patentably distinct from each other because:

- Claims 2 and 17 of current application and claim 10 of copending applicant recite common subject matter;

- Whereby claims 2 and 17 of current applicant, which recites the open

  ended transitional phrase "comprising", does not preclude the additional

  elements recited by claim 10 of copending application, and

Whereby the elements of claims 2 and 17 of current applicant are fully anticipated by

copending application claim 10 of copending application, and anticipation is "the

ultimate or epitome of obviousness" (*In re Kalm*, 154 USPQ 10 (CCPA 1967), also *In re*

Dailey, 178 USPQ 293 (CCPA 1973) and *In re Pearson*, 181 USPQ 641 (CCPA 1974)).

Claims 3 – 5, 18 and 19 are provisionally rejected under the judicially created

doctrine of obviousness-type double patenting as being unpatentable over claim 11 of

copending Application No. 10/717,804. The conflicting claims are not identical because

copending application requires the additional steps of calculating a first approximate

definition score, selecting subset of images based on first definition score, calculating a

second characteristic definition score, wherein locating a pupil in the image, wherein

applying a window enclosing the pupil, not required by claims 3 – 5, 18 and 19 of the

current application. However, the conflicting claims are not patentably distinct from each

other because:

- Claims 3 – 5, 18 and 19 of current application and claim 11 of copending

  applicant recite common subject matter;

- Whereby claim 3 – 5, 18 and 19 of current applicant, which recites the

  open ended transitional phrase "comprising", does not preclude the

  additional elements recited by claim 11 of copending application, and

Whereby the elements of claims 3 – 5, 18 and 19 of current applicant are fully

anticipated by copending application claim 11 of copending application, and anticipation

is "the ultimate or epitome of obviousness" (*In re Kalm*, 154 USPQ 10 (CCPA 1967),

also *In re Dailey*, 178 USPQ 293 (CCPA 1973) and *In re Pearson*, 181 USPQ 641

(CCPA 1974)).

Claims 6 and 7 are provisionally rejected under the judicially created doctrine of

obviousness-type double patenting as being unpatentable over claim 12 of copending

Application No. 10/717,804. The conflicting claims are not identical because copending

application requires the additional steps of calculating a first approximate definition

score, selecting subset of images based on first definition score, calculating a second

characteristic definition score, wherein locating a pupil in the image, wherein applying a

window enclosing the pupil, not required by claims 6 and 7 of the current application.

However, the conflicting claims are not patentably distinct from each other because:

- Claims 6 and 7 of current application and claim 12 of copending applicant
  recite common subject matter;

- Whereby claims 6 and 7 of current applicant, which recites the open
  ended transitional phrase "comprising", does not preclude the additional
  elements recited by claim 12 of copending application, and

Whereby the elements of claims 6 and 7 of current applicant are fully anticipated by

copending application claim 12 of copending application, and anticipation is "the

ultimate or epitome of obviousness" (*In re Kalm*, 154 USPQ 10 (CCPA 1967), also *In re Dailey*, 178 USPQ 293 (CCPA 1973) and *In re Pearson*, 181 USPQ 641 (CCPA 1974)).

     Claims 8 – 10 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 13 of copending Application No. 10/717,804. The conflicting claims are not identical because copending application requires the additional steps of calculating a first approximate definition score, selecting subset of images based on first definition score, calculating a second characteristic definition score, wherein locating a pupil in the image, wherein applying a window enclosing the pupil, not required by claims 8 – 10 of the current application. However, the conflicting claims are not patentably distinct from each other because:

- Claims 8 – 10 of current application and claim 13 of copending applicant recite common subject matter;

- Whereby claims 8 – 10 of current applicant, which recites the open ended transitional phrase "comprising", does not preclude the additional elements recited by claim 13 of copending application, and

Whereby the elements of claims 8 – 10 of current applicant are fully anticipated by copending application claim 13 of copending application, and anticipation is "the ultimate or epitome of obviousness" (*In re Kalm*, 154 USPQ 10 (CCPA 1967), also *In re Dailey*, 178 USPQ 293 (CCPA 1973) and *In re Pearson*, 181 USPQ 641 (CCPA 1974)).

Claims 12, 13, 21 and 22 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 9 of copending Application No. 10/717,804. The conflicting claims are not identical because copending application requires the additional steps locating a pupil in the image, wherein applying a window enclosing the pupil, not required by claims 12, 13, 21 and 22 of the current application. However, the conflicting claims are not patentably distinct from each other because:

- Claims 12, 13, 21 and 22 of current application and claim 9 of copending applicant recite common subject matter;

- Whereby claims 12, 13, 21 and 22 of current applicant, which recites the open ended transitional phrase "comprising", does not preclude the additional elements recited by claim 9 of copending application, and

Whereby the elements of claims 12, 13, 21 and 22 of current applicant are fully anticipated by copending application claim 9 of copending application, and anticipation is "the ultimate or epitome of obviousness" (*In re Kalm*, 154 USPQ 10 (CCPA 1967), also *In re Dailey*, 178 USPQ 293 (CCPA 1973) and *In re Pearson*, 181 USPQ 641 (CCPA 1974)).

Claim 25 is provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 5 of copending Application No. 10/717,804. The conflicting claims are not identical because copending application requires the additional steps of calculating a first approximate definition

score, selecting subset of images based on first definition score, calculating a second

characteristic definition score, wherein locating a pupil in the image, wherein applying a

window enclosing the pupil, not required by claim 25 of the current application.

However, the conflicting claims are not patentably distinct from each other because:

- Claim 25 of current application and claim 5 of copending applicant recite

  common subject matter;

- Whereby claim 25 of current applicant, which recites the open ended

  transitional phrase "comprising", does not preclude the additional

  elements recited by claim 5 of copending application, and

Whereby the elements of claim 25 of current applicant are fully anticipated by

copending application claim 5 of copending application, and anticipation is "the ultimate

or epitome of obviousness" (*In re Kalm*, 154 USPQ 10 (CCPA 1967), also *In re Dailey*,

178 USPQ 293 (CCPA 1973) and *In re Pearson*, 181 USPQ 641 (CCPA 1974)).

This is a <u>provisional</u> obviousness-type double patenting rejection because the

conflicting claims have not in fact been patented.

Claim Rejections - 35 USC § 103

1.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

2.   Claims 1 – 7, 11 and15 – 20 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Choi (IEEE pub titled "New Auto-focusing Technique using the

Frequency Selective Weighted Median Filter for Video Cameras") in view of Zhang (US

pat no 5,953,440).

With regards to claim 1, Choi discloses a method for determining a score characteristic

of a definition of a digital image, comprising cumulating quadratic norms of horizontal

and vertical gradients of luminance values of pixels of the image to determine a

cumulated total (see equation 1 – f_x^2 and f_y^2 are gradients along the horizontal and

vertical direction, respectively, with the squared indicating quadratic and summing

operator to cumulate all the image pixels), but does not disclose choosing cumulating

pixels based on first maximum luminance threshold. Zhang discloses computing

absolute value of horizontal gradient at all pixels in selected set having a gray scale

value greater than Mp (see fig 1 – 20 – gray scale level indicating the luminance value

and only selects pixels in the horizontal direction, Mi are the maximum luminance

threshold). One skill in the art would include choosing cumulating pixels based on first

maximum luminance threshold because to exclude the white area of the eye where it

does not include the neither the iris or the pupil of the individual, to avoid errors in

identification process.

With regards to claim 2, Choi discloses all of the claim elements / features as discussed

above in rejection for claim 1 and incorporated herein by reference, but fails to disclose

dividing the cumulated total by the number of cumulated quadratic norms. It is well known in the art to obtain a percentage measure of similarity by comparing biometric images to template images from a database (see MPEP 2144.03). One skill in the art would include a dividing step because to ease setting a threshold similarity value to identify an individual ranging from 0% to 100%.

With regards to claim 3, an extension to the arguments in claim 1, Zhang discloses choosing step includes selecting a current pixel having a vertical or horizontal gradient to be taken into account in the cumulated total only if the luminance of two pixels distant from the current pixel by a predetermined interval in the concerned direction are smaller than said first maximum luminance threshold (see fig 1 – 12 – 20 – the selected pixel is within the pupil and the two other pixels are on the left and right side of the iris, fig 2, the selected pixels are less than Mi, also see col. 3 lines 18 – 22 – the median threshold calculation takes a kernel of three to five pixels, the middle pixel is read as the current pixel and the two other pixels are located at end of the kernel).

With regards to claim 4, an extension to the arguments in claim 1, Zhang discloses first maximum luminance threshold is chosen according to an expected luminosity of possible specular spots, which are desired not to be taken into account (see col. 1 lines 64 – 67).

With regards to claim 5, see the rationale and rejection for claim 4. In addition, see col. 3 lines 18 – 28 of Zhang, where the selections of pixels are to avoid selecting those that are effect by specular reflection; the length of the interval can range from 1 to 2 pixels depending on the size of the specular reflection.

With regards to claim 6, in an extension to the arguments to claim 1, Zhang discloses a gradient is taken into account in the cumulated total only if its value is smaller than a predetermined gradient threshold (see fig 1 – 24 – the gradient threshold is selected to be the largest gradient value).

With regards to claim 7, in an extension to the arguments to claim 1, Zhang discloses the gradient threshold is chosen according to image contrast (the contrast of the image depends on the gray scale value pixels, which determines the threshold, fig 1 – 14 and 16).

With regards to claim 11, in an extension to the arguments to claim 1, Zhang discloses the image is an eye image (see fig 2).

With regards to claim 15 and 16, see the rationale and rejection for claim 1.

With regards to claim 17, see the rationale and rejection for claim 2.

With regards to claim 18, see the rationale and rejection for claim 3.

With regards to claim 19, see the rationale and rejection for claim 3. In addition, see

figure 1- 16, Mi is read as the maximum luminance threshold, of Zhang.

With regards to claim 20, see the rationale and rejection for claim 11.

3.   Claims 8 – 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Choi in view of Zhang ('440) as applied to claim 1 further in view of Schwartz (US pub

no 2002/0181746).

With regards to claim 8, Choi discloses all of the claim elements / features as discussed

above in rejection for claim 1 and incorporated herein by reference, but does not

disclose a selecting pixels which is smaller than a second threshold. Choi's second

threshold is computed by taking the median of all the pupil pixels, Mp, but the pixels that

are selected for gradient calculations are not smaller than Mp. Schwartz suggests using

plurality of thresholds to separate the very dark pixels, which is most likely the pupil,

intermediate light pixels, which represents the background, and the very bright pixels,

which most likely represent the iris of the eye or a specular spot reflection (see

paragraph 105 to 109). One skill in the art would include a step of selecting pixels which

is smaller than a second threshold because to distinguish the different regions of the

eye image to determine correct pixels to use for gradient measure and to avoid specular

spots reflection pixels to avoid identification errors.

With regards to claim 9, an extension to the arguments of rejection for claim 8, Zhang

also discloses a second threshold selected to be greater than an expected light intensity

o a characteristic element contained in the digital image (see fig 1 −20 − Mp).

With regards to claim 10, an extension to the arguments of rejection for claim 8, Zhang

discloses element is an iris of an eye (see fig 2).

4.   Claims 12 − 14, 21, 22, 29 and 30 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Choi in view of Zhang ('440) as applied to claim 1 further in view of

Zhang (US pat no 5,978,494).

With regards to claim 12, Choi discloses all of the claim elements / features as

discussed above in rejection for claim 1 and incorporated herein by reference, but fails

to disclose choosing steps to one or several images of a set of digital images

representing a same object. Zhang '494 discloses choosing steps to one or several

images of a set of digital images representing a same object (see fig 1 − 18, 24 or 33).

One skill in the art would include a step of choosing a best biometric image from a set of

biometric image of the same object because to enroll biometric information from the

person into an individual identification system, which is use to validate an individual who is trying to gain access into a secure area, protecting the secure area.

With regards to claim 13, an extension to the arguments of claims 1 and 12, the combination of Choi, Zhang '440 and Zhang '494 disclose performing an approximate definition test on the images of the set based on cumulating of gradients in a single direction of the light intensities of the image pixels and performing the steps of cumulating the quadratic norms of horizontal and vertical gradients of luminance values of pixels of the image and choosing the pixels only on the images in the set which have successfully passed the approximate definition test (see Zhang '494 fig 1 – 24 for choosing a set of candidate enrollment images and Choi and Zhang '440 disclosing the gradient measure of both single and two directions on image). See motivations provided in claims 1 and 12 for combining Choi, Zhang '440 and Zhang '494.

With regards to claim 14, an extension to the arguments of claims 12 and 13, Zhang '494 discloses selecting the clearest image from the set of images (see fig 1 – 33).

With regards to claims 21 and 29, see the rationale and rejection for claim 12.

With regards to claims 22 and 30, see the rationale and rejection for claim 13.

5.   Claims 23 – 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Choi in view of Zhang ('440) as applied to claim 16 further in view of Suzaki (US pat no

6,307,954).

With regards to claim 23, Choi discloses all of the claim elements / features as

discussed above in rejection for claim 1 and incorporated herein by reference, but fails

to disclose eliminating from the eye image all pixels that are not within a predetermined

vertical distance from the location of the pupil. Suzaki discloses the image is a sub-set

of an eye image that is obtained by determining a location of a pupil of a pupil of the eye

image and eliminating from the eye image all pixels that are not within a predetermined

vertical distance from the location of the pupil (see fig 10 – 302 – all the pixels above

and below the rectangular window are not considered). One skill in the art would include

eliminating pixels that are further away from the pupil section of the image because to

reduce the amount of searching computation where searching a smaller image takes

less processing time and power.

With regards to claim 24, an extension to the arguments of claim 23, Suzaki discloses

eliminating some pixels from the eye image to create a reduced image (see fig 10 –

pixels outside of the window 302 are not consider), determining an average luminance

of each of a plurality of blocks of the reduced image (see fig 4a and 4b), determining

which of the blocks has the lowest average luminance and determining a location of the

block with the lowest average luminance as the location of the pupil (see col. 6 lines 36

– 38 – when S(X,Y) is smallest, where S(X,Y) is the value of each block in figure 4b, P(X,Y) will have the largest value, which indicates the location of the pupil). One skill in the art would look for blocks which has the lowest luminance because when using the gray scale on an image the darkest value starts from a value of zero and the brightest is two hundred fifty five, if the image is using 8 bits, since the pupil section of the eye image is one of the darkest area in the image, the system will process the eye images at a faster rate knowing the location of dark areas in the image.

With regards to claim 25, see the rationale and rejection for claims 23 and 24.

With regards to claim 26, see the rationale and rejection for claim 2.

With regards to claim 27, see the rationale and rejection for claim 3.

With regards to claim 28, see the rationale and rejection for claim 19.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alex Liew whose telephone number is (571)272-8623. The examiner can normally be reached on 9:30AM - 7:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph Mancuso can be reached on (571)272-7695. The fax phone

number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Alex Liew
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4/13/07

JOSEPH MANCUSO
PATENT EXAMINER